EPA SAN FERNANDO VALLEY SUPERFUND SITES UPDATE

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • June 2003
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The United States Environmental Protection Agency (EPA) continues its efforts to clean up the San Fernando Valley Superfund sites. The purpose of this fact sheet is to announce the results of the most recent groundwater sampling events and to provide an update on cleanup at the sites. Terms that appear in **bold** are in a glossary on page 8.

The San Fernando Valley Superfund sites are in the eastern portion of the San Fernando Valley between the Santa Monica and San Gabriel mountains. The San Fernando groundwater basin is an important source of drinking water for the Los Angeles metropolitan area, the cities of Glendale, Burbank, and San Fernando, and the unincorporated area of La Crescenta (See figure 1). In the early 1980s, **trichloroethylene** (TCE) and **perchloroethylene** (PCE) were detected in numerous drinking water wells above the maximum contaminant level (MCL) of five parts per billion (ppb). The MCL is an enforceable standard of the maximum permissible level of a contaminant in water delivered to a public drinking water system. As a result of the widespread contamination, state and local agencies acted to provide alternative drinking water supplies, primarily by purchasing water from the Metropolitan Water District (MWD). In 1986, the EPA included the sites in the San Fernando Valley on the **National Priorities List** and began coordinating efforts to investigate and clean up the regional groundwater contamination.

The San Fernando Valley Superfund sites consist of four study areas, two of which are divided into one or more operable units (OUs). An OU is a focused study area that allows EPA to take each action as part of an overall, basinwide site cleanup. The four areas are: North Hollywood (Area 1), which includes the North Hollywood and Burbank OUs; Crystal Springs (Area 2), which includes the Glendale North and South OUs; and the Verdugo (Area 3) and Pollock (Area 4) study areas. Each San Fernando Valley OU has a selected interim **Record of Decision** remedy that will be incorporated into a final cleanup. Currently, EPA is carrying out the interim remedies at the OUs while a basinwide groundwater investigation is being conducted.

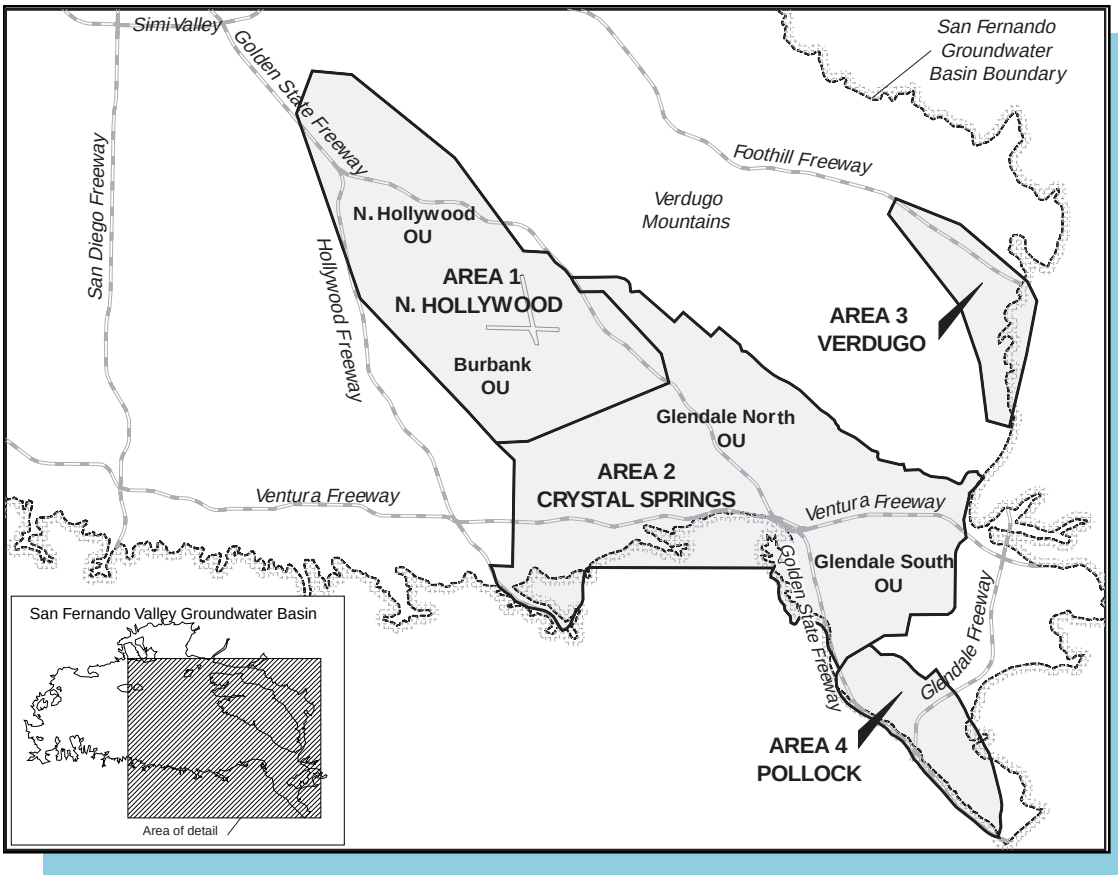

Figure 1: *San Fernando Valley Superfund Sites*

Cont'd. on pg. 2

GROUNDWATER MONITORING PROGRAM

Since 1992, EPA has monitored groundwater contamination through its Basinwide Monitoring Program (quarterly and annual sampling events). EPA uses the groundwater monitoring results to help define the site contaminant boundaries (extent and depth), develop contamination plume maps, assess the threat from emerging contaminants, and refine a **groundwater model** to assist in developing a final cleanup remedy for the site.

At each quarterly sampling event, wells are sampled for **volatile organic compounds** (VOCs), primarily TCE and PCE, and nitrates. In addition, EPA conducts an annual sampling event with an expanded list of chemicals. The annual event includes sampling for VOCs, total dissolved metals including total dissolved chromium, nitrate, **general chemistry**, and total organic carbon. Since 1999, EPA has also included **hexavalent chromium** and **methyl tertiary butyl ether** (MTBE) in the quarterly sampling events and **semi-volatile organic compounds** (SVOCs) and **perchlorate** in the annual sampling event. The sampling results will allow EPA and other state and local agencies to determine if these contaminants are of concern in the San Fernando Valley basin and whether or not cleanup action will be necessary.

GROUNDWATER SAMPLING RESULTS

The EPA sampled 63 monitoring wells during the 2001 event. Monitoring wells are used to allow sampling of groundwater to determine such things as the direction of groundwater flows and the types and amounts of contaminants present.

TCE

TCE was detected in groundwater from 55 of the 63 wells sampled in 2001. Groundwater from 23 of the wells exceeded the State of California MCL of 5 ppb. The highest concentration of TCE in groundwater from monitoring wells was 1,200 ppb (See page 5). EPA's treatment system that is in place addresses this contaminant by removing it from the groundwater.

PCE

PCE was detected in groundwater from 59 of the 63 wells sampled in 2001. Groundwater from 17 of the wells exceeded the State of California MCL of 5 ppb. The highest concentration of PCE in groundwater from monitoring wells was 340 ppb (See page 4). EPA's treatment system that is in place addresses this contaminant by removing it from the groundwater.

SVOCs and MTBE

SVOCs were not detected in groundwater from any of the 63 wells. MTBE was detected in groundwater at seven of 63 wells. MTBE groundwater concentrations ranged between 0.6 ppb and 13 ppb. Groundwater from one monitoring well equaled the State of California MCL of 13 ppb. EPA will continue to monitor and evaluate the extent of these contaminants.

PERCHLORATE

Perchlorate was detected in groundwater from 12 of the 63 wells sampled in 2001. Groundwater from seven of the monitoring wells equaled or exceeded the State of California **action level** of 4 ppb. The highest concentration of perchlorate in groundwater from monitoring wells was 6 ppb. EPA will continue to monitor and evaluate the extent of this contaminant.

HEXAVALENT CHROMIUM

Hexavalent chromium concentrations in groundwater were detected in 46 of 63 wells sampled during 2001. Concentrations in groundwater from four wells exceeded the State of California MCL of 50 ppb. The highest concentration of hexavalent chromium in groundwater from the monitoring wells was 523 ppb. EPA will continue to monitor and evaluate the extent of this contaminant.

UPDATE ON EPA INVESTIGATIONS OF CHROMIUM IN THE SAN FERNANDO VALLEY

The EPA led the way in evaluating chromium contamination in San Fernando Valley groundwater, conducting 15 total chromium monitoring events between 1989 and 1999. In 1999, EPA initiated quarterly sampling of our monitoring wells for hexavalent chromium. The EPA also evaluates chromium data from other facility monitoring wells sampled by individual companies in the San Fernando Valley.

In January 1999, EPA initiated an investigation to identify the specific sources of chromium contamina-

tion by providing funds to the Los Angeles Regional Water Quality Control Board (LARWQCB) to investigate 4,040 potential chromium users in the San Fernando Valley. With EPA funding and oversight, the LARWQCB identified 255 of the 4,040 suspected chromium users that required on-site inspection. The LARWQCB completed the 255 inspections in December 2001. Of the 255 inspected sites, LARWQCB recommended 150 sites for closure (No Further Action) and 105 sites that require further assessment or investigation. In August 2002, the LARWQCB completed these efforts by issuing the *Chromium Investigation: San Fernando Valley Phase I: Inspections Final Report* (Chromium Investigation). As a result of the Chromium Investigation, the LARWQCB has issued four Cleanup and Abatement Orders, and several additional Cleanup and Abatement Orders will be issued in the near future. Currently, the LARWQCB's enforcement actions are focusing on the facilities that show some of the highest concentrations of chromium in groundwater or pose imminent threats to water supply wells in the San Fernando Valley. In addition, we are supporting the LARWQCB's enforcement efforts and meeting regularly with state and local agencies to monitor enforcement activities and offer enforcement assistance if needed.

BASINWIDE GROUNDWATER MODEL UPDATE

In 2002, EPA began the process of updating the basinwide groundwater model by incorporating new information on groundwater management practices in the Valley and the most current scientific knowledge of the factors affecting groundwater flow and contamination movement in the basin. A groundwater model, given the proper assumptions and the most accurate data, helps EPA predict how well a cleanup action will work. The updated groundwater model will be used in the basinwide **feasibility study** (FS) to estimate the effectiveness of the interim remedies in containing and removing the contaminated mass from the groundwater aquifer system and decide what further actions may be needed. Preliminary components of the FS include: 1) an evaluation of the combined effectiveness of the individual interim remedies in the North Hollywood, Burbank, and Glendale North and South OUs, 2) an analysis of additional remedial alternatives, and 3) a review of potential vadose zone (soil above the groundwater table) movement, remedial options, and methods for establishing vadose zone cleanup objectives. Based on these studies EPA will issue a basinwide proposed cleanup plan for public comment.

UPDATE ON THE OPERABLE UNITS

AREA 1 - NORTH HOLLYWOOD

- **North Hollywood OU**

Since 1989, the Los Angeles Department of Water and Power (LADWP), with EPA funding and oversight, has been operating a 2,000 gallons per minute (gpm) groundwater extraction and treatment facility to remove VOCs and prevent the movement of contamination within the North Hollywood OU. The water is treated for VOCs using air stripping and vapor-phase granular activated carbon and is distributed to the public through LADWP's North Hollywood Pumping Station. EPA has settled with nine potentially responsible parties (PRPs) for most of the costs incurred in the investigation, construction, and operation of the North Hollywood OU. The funds recovered currently support and are expected to continue to support operation of the treatment facilities through 2005.

In 2001 and 2002, EPA approved LADWP workplans for operational improvements and a study of enhancement options to improve the effectiveness of the North Hollywood OU. The workplan is currently being implemented and has resulted in fewer and shorter service interruptions at the OU. The enhancement study is in draft form and is being revised to incorporate groundwater modeling and other related data.

EPA will conduct a five-year review of the North Hollywood OU in 2003. These reviews are required by law every five years at ongoing Superfund remedial actions. The review will determine whether the existing remedial actions at the OU meet the objectives identified in the North Hollywood Record of Decision for cleanup. If you have any questions about this OU or would like to be interviewed as a part of the five-year review, please call Bob Fitzgerald, the North Hollywood OU project manager, at 415-972-3173.

- **Burbank OU**

The Burbank OU treatment plant delivers 9,000 gpm of treated groundwater to the City of Burbank which is blended with water provided by the Metropolitan Water District (MWD) and delivered to the public. The treated, blended water meets all drinking

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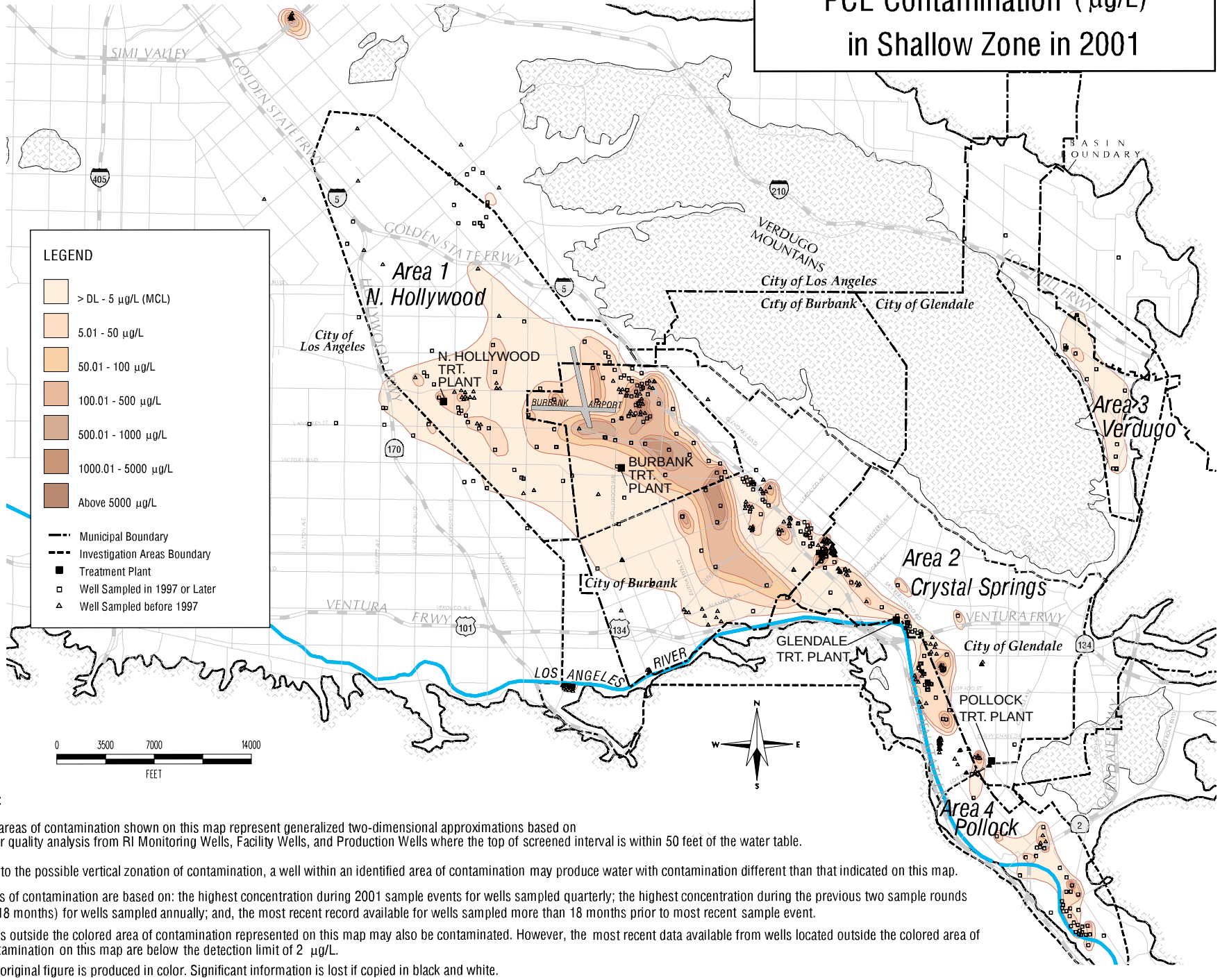
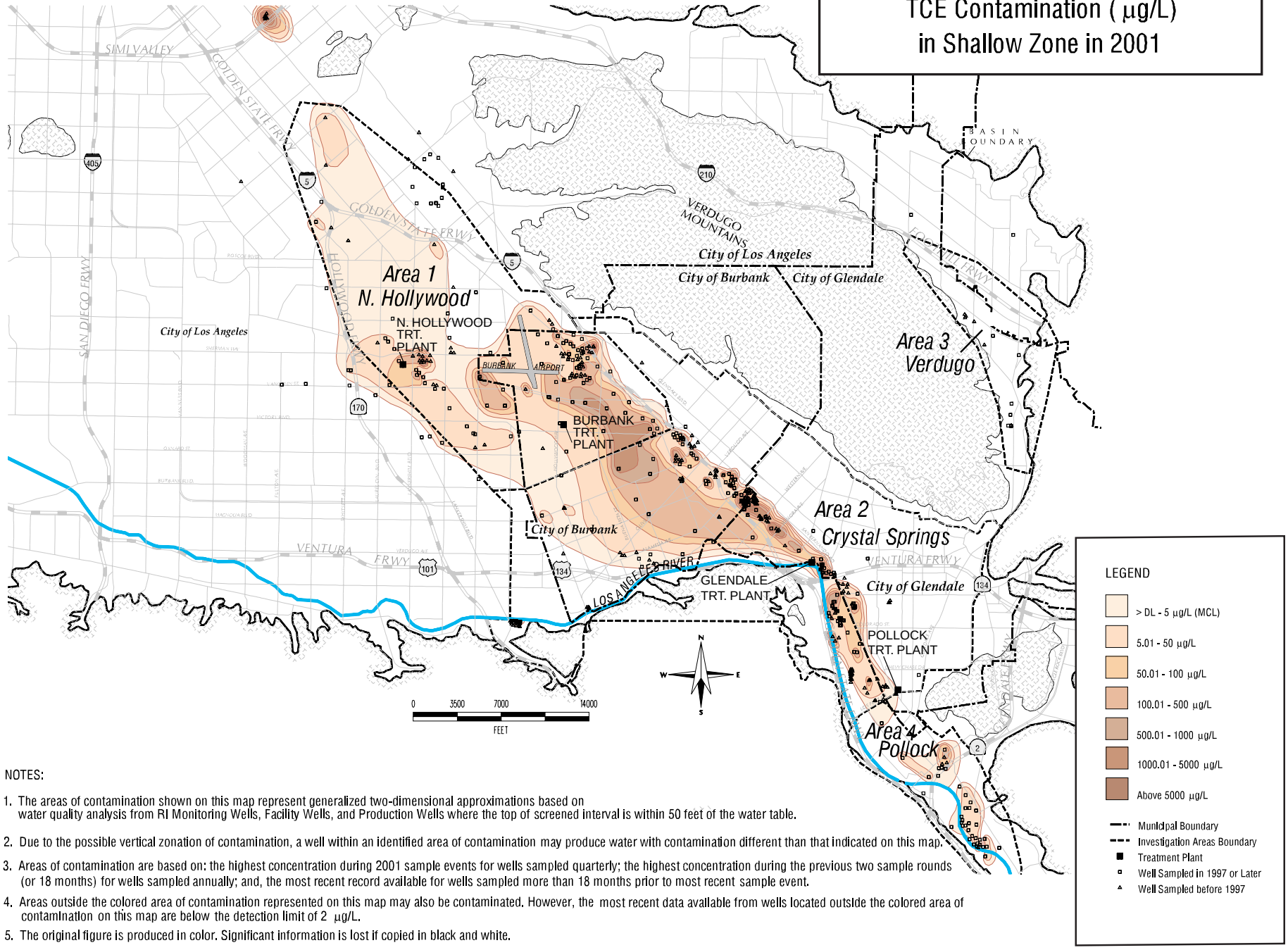
SAN FERNANDO VALLEY BASIN
PCE Contamination (µg/L)
in Shallow Zone in 2001



NOTES:

1. The areas of contamination shown on this map represent generalized two-dimensional approximations based on water quality analysis from RI Monitoring Wells, Facility Wells, and Production Wells where the top of screened interval is within 50 feet of the water table.
2. Due to the possible vertical zonation of contamination, a well within an identified area of contamination may produce water with contamination different than that indicated on this map.
3. Areas of contamination are based on: the highest concentration during 2001 sample events for wells sampled quarterly; the highest concentration during the previous two sample rounds (or 18 months) for wells sampled annually; and, the most recent record available for wells sampled more than 18 months prior to most recent sample event.
4. Areas outside the colored area of contamination represented on this map may also be contaminated. However, the most recent data available from wells located outside the colored area of contamination on this map are below the detection limit of 2 µg/L.
5. The original figure is produced in color. Significant information is lost if copied in black and white.

SAN FERNANDO VALLEY BASIN
TCE Contamination (µg/L)
in Shallow Zone in 2001



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water requirements. Lockheed Martin constructed the treatment plant under Consent Decrees with EPA and provides funding for the operation and maintenance of the plant. The City of Burbank assumed responsibility for the daily operation of the plant in March 2001. Since assuming operation of the treatment plant, the City has made and is currently making modifications to the plant to improve long-term efficiency of the system. During these plant improvements, the amount of treated water produced is temporarily reduced.

During the Fall of 2000, Lockheed Martin submitted a force majeure ("act of God") claim to EPA in accordance with the Consent Decree. At that time, Lockheed Martin was required to operate the plant and produce 9,000 gpm, and had failed to do so for several months prior to submitting the force majeure claim. Lockheed Martin believed that it could not produce 9,000 gpm at the treatment plant because the groundwater levels in the area had dropped. EPA, the City of Burbank, Lockheed Martin, and the Department of Health Services (DHS) conducted a nine-month study to determine if the groundwater levels had dropped or if the failure to produce 9,000 gpm was due to other issues at the plant. As a result of the study, EPA found that equipment limitations and maintenance issues at the plant, not lower groundwater levels, were the reason for the reduced pumping rate. EPA assessed a penalty against Lockheed Martin for failure to produce 9,000 gpm. EPA and Lockheed Martin resolved the penalty action for a penalty of $260,000, which Lockheed Martin has paid. Water quality was not impacted by the reduced pumping. EPA, Lockheed Martin and the City of Burbank will continue to work together to improve plant efficiency.

AREA 2 - CRYSTAL SPRINGS (GLENDALE) (Revised 7/03)

In 1989, EPA found elevated concentrations of VOCs in the groundwater in the Glendale area of the San Fernando Valley. Two contaminated groundwater plumes were discovered and are referred to as the Glendale North and Glendale South Operable Units (GOUs). On June 18, 1993, after receiving and considering public comments, EPA signed Records of Decision (RODs) for both the Glendale North and South OUs. The plan for the combined remedy was to extract groundwater at a rate of 5,000 gpm and remove VOCs using air stripping, liquid-phase granulated activated carbon, and vapor-phase granulated activated carbon. The treated water was to meet all drinking water standards except for nitrates. To meet the nitrate standard, the plan called for the water to be blended with MWD water to meet the nitrate standard and transported to the City of Glendale for distribution through its public water supply system under a DHS permit.

In 1994, EPA signed an Administrative Order on Consent (AOC) with 25 PRPs to conduct the remedial design phase of the project. The PRPs completed the remedial design in November 1996. Because EPA was unable to reach agreement for a Consent Decree with the PRPs to perform the remedial action phase, EPA issued Unilateral Administrative Orders to the PRPs who had signed the AOC, as well as additional PRPs, to begin preconstruction activities. In August 2000, EPA entered into a Consent Decree with these PRPs to voluntarily complete the remedial action and with the City of Glendale, which is not a PRP, to perform operation and maintenance at the site. Construction of the groundwater extraction and treatment plant was completed in October 1999.

On August 1, 2000, DHS issued the drinking water permit for the treatment plant and operation began. However, DHS did not include one of the GOU extraction wells, GS-1, in the original drinking water permit because of concerns that too much reclaimed water would be captured during pumping. Reclaimed water is typically tertiary-treated (three times) water from a sewage treatment plant that is used to water freeways, highways, parks and golf courses and not typically used for drinking water purposes. DHS required the City of Glendale to conduct a focused investigation to address the concerns in GS-1. After the City of Glendale completed the investigation, DHS issued a permit amendment in May 2002 allowing full operation of GS-1. The DHS determined the information supplied by the City of Glendale provided assurance that GS-1 was not, in fact, capturing too much reclaimed water.

In September 2000, the City of Glendale became concerned about the hexavalent chromium concentration in the GOU water, even though the GOU water met all drinking water standards, including both federal and state MCLs for chromium. The City's concern was based on a **Public** Health Goal (PHG) of

2.5 ppb for **total** chromium, established by the State of California in **1999**. The PHGs for chemicals are developed by the State Office of Environmental Health Hazard Assessment (OEHHA). Based on its concern, the City of Glendale refused to accept the GOU outflow into its potable water system, and instead began discharging the treated GOU water to the Los Angeles River. The discharge continued until July 2001, when the City of Glendale began accepting a small quantity of treated GOU water for blending into its potable water supply system. During this period, EPA, the Upper Los Angeles River Area Watermaster, and the City of Glendale worked together to reach an agreement that would allow maximum effectiveness of the GOU while addressing the City of Glendale's concern with water quality and the Watermaster's concern with the wasting of water by discharge to the Los Angeles River.

In September 2001, California EPA withdrew the PHG for chromium 6 as a result of criticism from a panel of University of California experts. The experts criticized the use of a flawed scientific study as the primary basis for the PHG. In response to the recission of the PHG, the Glendale City Council allowed increased acceptance of GOU water into the City of Glendale water system. On January 7, 2002, the City of Glendale began accepting the full outflow from the GOU on a 24-hour-a-day schedule. Very recently, Senator Deborah Ortiz raised concerns that the panel had been subjected to "undue influence," alleging that Pacific Gas and Electric influenced the panel and its review of the scientific literature and its health effects. The company has denied the allegations; however, the California Environmental Protection Agency is shelving the panel's report. Concurrently, OEHHA is evaluating available information on chromium toxicity and plans to issue a new chromium PHG.

In June 2002, after startup of GS-1, the GOU began operation at the full design capacity of 5,000 gpm. The GOU has continued to operate at full capacity since that date, and treated water from the facility continues to meet all Federal and State drinking water requirements including the MCL for chromium.

The GOU treated water, like North Hollywood and Burbank treated water, is blended with water obtained from MWD.

AREA 3 - VERDUGO STUDY AREA

The Verdugo Study Area includes the groundwater in and around several wellfields located in the Verdugo Basin. To date, PCE has been the only VOC detected at or above its MCL of 5 ppb, with a detection at 10 ppb in 1993. Subsequent sampling results have been less than the MCL. TCE has never been detected above the MCL of 5 ppb. EPA continues to monitor the groundwater quality of the Verdugo Basin through its basinwide monitoring. Under a grant from EPA, the LARWQCB conducted an investigation of potential contaminant sources in the Verdugo Basin. The report was completed in September 2000 and no significant sources of groundwater contamination were identified. EPA plans to prepare a proposed plan for cleanup and Record of Decision within the next year.

AREA 4 - POLLOCK STUDY AREA

The Pollock Study area is located at the southern portion of the San Fernando Valley Basin near LADWP's Pollock Wellfield. In 1994, EPA completed a site assessment of this area and determined that establishing an OU in the Pollock area was not necessary at that time because LADWP planned to conduct a wellhead treatment project in the Pollock Wellfield which would treat groundwater in the Pollock study area.

In March 1999, LADWP reactivated two wells in the Pollock Wellfield and began operating a 3,000 gpm groundwater treatment plant. The water is treated to drinking water standards by liquid-phase granular activated carbon and transferred to LADWP's public water supply. Pumping in the Pollock Wellfield is expected to capture nearly all the contamination upgradient of the wellfield that is not captured by EPA's OUs and prevent movement of contaminated groundwater into the Los Angeles River. EPA plans to evaluate the effectiveness of the Pollock Wellfield project as part of the Basinwide FS and ROD.

GLOSSARY OF TERMS

Action Level: An action level is the level of a contaminant in drinking water that is considered not to pose a significant health risk to people ingesting that water on a daily basis. It is calculated using standard risk assessment methods for non-cancer and cancer endpoints, and typical exposure assumptions, including a 2-liter per day ingestion rate, a 70-kilogram adult body weight, and a 70-year lifetime.

Feasibility study establishes criteria for cleaning up the site, identifies and screens cleanup alternatives, and analyzes technologies considered and costs.

General chemistry are chloride, sulfate, hardness, total alkalinity, total dissolved solids and total organic carbon analysis.

Groundwater Model: A numerical groundwater flow model is the mathematical representation of an aquifer in a computer. Using the basic laws of physics that govern groundwater flow, the computer predicts future groundwater flow using the physical boundaries of the aquifer, recharge, pumping, interaction with rivers, or other phenomenon to model the behavior of the aquifer over time.

Hexavalent chromium and trivalent chromium are the two common forms of chromium in the environment. Hexavalent chromium is the toxic form of chromium and is the basis of the State of California MCL of 50 ppb.

Maximum contaminant level (MCL) is an enforceable standard of the maximum permissible level of a contaminant in water delivered to a public drinking water system.

Methyl tertiary butyl ether (MTBE) is a gasoline additive (an oxygenate) that boosts the oxygen content in fuel, which reduces the levels of air-polluting carbon monoxides released from vehicle exhaust systems. MTBE moves faster than other gasoline constituents and can reach water supplies more quickly. The primary source of MTBE contamination in groundwater is from leaking underground storage tanks and pipelines. The State of California is studying MTBE to determine if a significant risk is associated with its use and, if there is significant risk, will take appropriate action to protect public health and the environment.

National Priorities List is a list of hazardous waste sites identified for further investigation and possible cleanup through the Superfund law.

Perchlorate is a man-made inorganic salt used as a component in solid rocket fuel, munitions, and pyrotechnics (fireworks). The California Department of Health Services (DHS) has detected perchlorate in certain drinking water wells in the Los Angeles County area. At this time, the primary human health concern related to perchlorate is its potential to interfere with the thyroid glands ability to utilize iodine to produce thyroid hormones properly.

Record of Decision is a formal decision document that spells out what cleanup action will happen at a site or at an operable unit.

Semi-volatile organic compounds: SVOCs are a group of chemicals that are volatile but have higher boiling points than volatile organic compounds (VOCs).

Trichloroethylene and **perchloroethylene** are VOCs widely used in a variety of industries including metal plating, machinery degreasing, and dry cleaning.

Volatile organic compounds are organic (carbon-obtaining) compounds that evaporate readily at room temperature.

AGENCIES INVOLVED WITH THIS SITE

CAL-EPA Department of Toxic Substances Control
Sayareh Amir (818) 551-2822

Los Angeles Department of Water and Power
Ernest Wong (213) 367-0847

Los Angeles Regional Water Quality Control Board
Dixon Oriola (213) 576-6803

City of Burbank
Fred Lantz (818) 238-3550

City of Glendale
Don Froelich (818) 548-2137

Upper Los Angeles River Area Watermaster
Mel Blevins (213) 367-1020

HOW TO GET MORE INFORMATION ABOUT THE SITE .....

San Fernando Valley Superfund Sites Information Repositories

Copies of technical documents related to the site and its cleanup decisions are available for review at the following site repository locations:

City of Burbank Public Library
110 North Glenoaks Blvd.
Burbank, CA 91502
(818) 238-5580 Reference Department

City of Glendale Public Library
222 East Harvard Street
Glendale, CA 91205
(818) 548-2021

Los Angeles Department of Water and Power (LADWP) Library
111 North Hope Street,
Room 520
Los Angeles, CA 90012
(213) 367-1994

U.S. EPA Superfund Records Center
95 Hawthorne Street,
Room 403 South
San Francisco, CA 94105
(415) 536-2000

If you wish to obtain more site information through the internet, documents may be viewed online at EPA's website:

For General site information for Areas 1-4: http://yosemite.epa.gov/r9/sfund/overview.nsf

For Administrative Records: http://www.epa.gov/region09/waste/sfund/npl/arindex.html

MAILING LIST .....

If you would like to be on the San Fernando Superfund sites mailing list to receive information, please call Jacqueline Lane, Community Involvement Coordinator, at (415) 972-3236, or leave a message on our toll-free line (800) 231-3075 and you will be called back promptly. Please leave your name, organization, address, city, state, zip code and a number where she can call to confirm your request.

SAN FERNANDO VALLEY SUPERFUND SITES UPDATE

FOR SPECIFIC SITE CLEANUP EFFORTS, CONTACT .....

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